

User Instructions for the STP-325
325 watt Power Inverter



sima[®]
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P/N 21684 03.5

Introduction

Congratulations on your purchase of the STP-325 Power Inverter. It lets you provide 2 sources for 115 Volts AC anywhere you have 12 volts; in your car, truck, RV or boat. It is designed to be easy to use and provide years of dependable service.

IMPORTANT SAFETY NOTE

Read all the Cautions and Warnings before installing and using the power inverter. The inverter must be properly installed. If you are not familiar with 12 volt high current wiring, it is recommended that you have a professional automotive installer install the inverter.

Cautions

- **The STP-325 generates 115 Volts AC power from your 12 volt car battery. Treat the 115 Volt AC output just like you treat the 115 Volt AC in your house. It is just as dangerous. Keep children away from STP-325.**
- **With heavy use, the unit will become warm and possibly hot. Keep it away from any heat sensitive materials.**
- Do not connect the unit to AC distribution wiring.
- Keep the unit away from water. Do not allow water to drip or splash on the STP-325
- Keep the unit in cool environments. Ambient air temperature should be between 40 degrees and 80 degrees F. Do not block fan opening.
- Keep out of direct sunlight and away from heating vents.
- Keep the unit away from flammable material or in any location which may accumulate flammable fumes or gases, such as the battery compartment of your car, boat, RV or truck.

Health Advisory

Sima Products does not authorize the use of the STP-325 with any products to be used in life support devices or systems.

Model No. _____
Date Purchased _____

This package Includes

- STP-325 Power Inverter
- Cable with Alligator clips – 30”
- Cable with cigarette lighter adapter
- Instruction manual (this document)

Key Features

The STP-325 is designed for high-efficiency operation to provide the most output with the least battery power usage.

Advanced protection

- **Thermal Protection** shuts the unit off to guard against the unit getting too hot
- **Overload Protection** protects the unit from excessive loads
- **Under Voltage Protection** turns the unit off to protect the battery from being over discharged

This Sima power inverter produces a modified sine wave output which is suitable for most AC loads. This includes lights, appliances, motors, TVs and most electronics.

CAUTION: There are a few battery chargers that are not compatible with modified sine wave operation. These are typically small rechargeable, battery-operated devices like razors and flashlights that can be plugged directly into an AC receptacle to recharge.

Some chargers for battery packs used in power tools also should not be used with an inverter. These chargers typically have a warning label indicating that dangerous voltages are present at the battery terminals. Only a true sine wave inverter should be used with these types of appliances. Damage to the device could result if you attempt to use them with any type of modified sine wave inverter.

Warning: Do not use the Sima power inverter with devices mentioned above!

Sima Products Corporation ("Company") warrants that if the accompanying product proves to be defective to the original purchaser in material or workmanship within 90 days from the original retail purchase, the Company will, at the Company's option, either repair or replace same without charge (but no cash refund will be made). If the product is returned within three (3) years from the original date of purchase, the Company will repair the unit; however, a labor-only fee will be charged. The Company will not charge a fee for any parts used in the repair. The Company will notify you of any fees to be assessed prior to servicing the unit.

What you must do to enforce Warranty: You must deliver, mail or ship the product, together with the original bill of sale and this limited Warranty statement as proof of warranty coverage to :

Sima Products Corporation
Attn: Customer Service
140 Pennsylvania Ave., Bldg. #5,
Oakmont, PA 15139

It is recommended that you call Sima Products Corporation at 800-345-7462 before sending the unit in for service.

Limitation of Liability and Remedies

Sima Products Corporation shall have no liability for any damages due to lost profits, loss of use or anticipated benefits, or other incidental, consequential, special or punitive damages arising from the use of, or the inability to use, this product, whether arising out of contract, negligence, tort or under any warranty, even if Sima Products Corporation has been advised of the possibility of such damages. Sima Products Corporation's liability for damages in no event shall exceed the amount paid for this product. Sima Products Corporation neither assumes nor authorizes anyone to assume for it any other liabilities.

Limited Warranty

Installation

- Needed for installation - not included:
- Mounting hardware for the inverter
- Tools for mounting and electrical wiring

Mounting

Step #1: The STP-325 should be mounted on a solid flat surface capable of handling the weight of the unit, with space around the unit for ventilation. It is very important that the unit be secured using the proper sized mounting hardware (not included) to keep the unit from moving around or becoming loose in emergency situations. **Do not block fan opening!**

CAUTION: The power inverter must be mounted securely in any type of moving vehicle. In an emergency situation, if the power inverter is not securely mounted, it could cause bodily injury

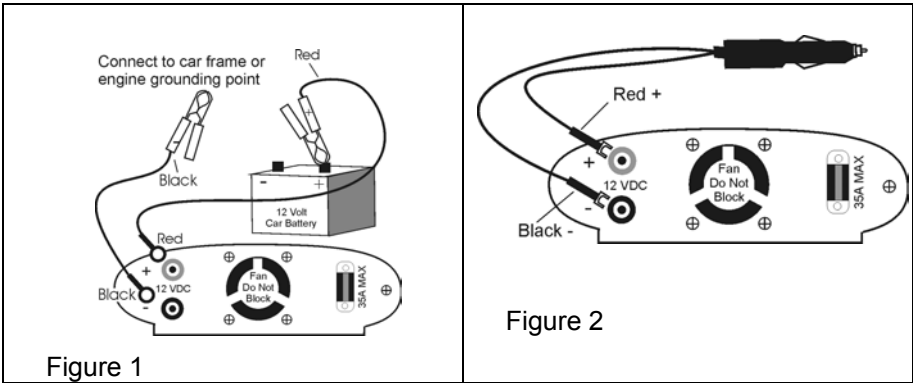
Connection to Power Source

The STP-325 requires connection to a standard 12 volt DC power source such as the batteries found in most cars, trucks, RVs and boats. The power source must provide between 11 and 15 volts Dc and be able to provide sufficient current to power the load. At full power the STP-325 will draw about 30 amps.

When the load exceeds 150 watts, use the cables with alligator clips for direct connection to the 12 volt battery. **WARNING: When connecting cables, a spark may occur. This is normal. To prevent explosion from the battery gasses, when connecting jumper cables, always connect the wires to the inverter first.**

To connect the STP-325 to your 12 volt battery (Figure1):

- Make sure both alligator clips are disconnected from the battery.
- Connect the red (+) wire to the positive (+) terminal on the STP-325 and the black (-) wire to the negative (-) terminal.
- Connect the red (+) alligator clip to the positive (+) battery terminal and the black (-) alligator clip to the frame or engine of the vehicle.



To connect the STP-325 using the cigarette plug adapter (Fig. 2):

The STP-325 also comes with a cigarette lighter plug for easy connection to the power source, Use the cigarette lighter plug, only when powering loads less than 150 watts. The tip of the plug is positive and the side contacts are negative.

- Make sure the cigarette plug is not plugged in.
- Attach the red (+) lead to the positive (+) terminal on the STP-325 and the black (-) lead to the negative (-) terminal as shown in Figure 2 above.
- Plug the cigarette plug into the cigarette socket in the car. Push firmly for a good connection.

Once connected to the 12V power source, proceed to Testing the Power Inverter

Testing the Power Inverter

Make sure the 12 volt power source is wired properly to the power inverter. With nothing plugged into the 115 VAC outlets, turn on the power switch of the STP-325. If the green power light does not come on, turn the power switch off and check your wiring and external fuse.

With the inverter turned off, plug the appliance you want to use into the 115 VAC power outlet on the unit. Turn on the power switch of the STP-325. Turn on the appliance. The appliance should now be operational.

Operation

Equipment Power Usage

It is important to use only products that draw less than 325 watts with the STP-325. Use of products greater than 325 watts may either cause the protection circuitry of the STP-325 to shut down or the fuse to blow. Repeated use of excessive power draw can cause failure of the STP-325.

How to calculate power usage.

Most products have a power rating on them such as 45 watts. Others may be marked with their current draw, such as .9 amps. To convert the current to watts multiply the current by 115. Thus .9 amps x 115 = 104 watts.

Turn on the STP-325

Plug the appliance you want to use into the 115 VAC power outlet on the STP-325 (see the chart below for suitable appliances to use with the STP-325). Turn on the power switch of the STP-325 so the green power light is illuminated. Turn on the appliance. The appliance should now be operational.*

Typical Appliance	Current Draw
Cell phone charger	20 watts
Camcorder	23 watts
VCR	40 watts
Soldering iron	45 watts
Laptop computer	75 watts
Small stereo system	150 watts
19" TV	160 watts
Small power drill	250 watts

Battery Life Chart

Power Usage	Approx 12 volt current	Typical operation time with 50 amp-hr. car battery	Typical operation time with 100 amp-hr. car battery
100 watt	9 amps	5.5 hours	11 hours
200 watt	19 amps	2.6 hours	5.2 hours

* **Note :** Some products such as televisions draw a high surge current to start up. If the appliance does not operate and the inverter turns off, you may need a larger inverter. Check that the battery and the 12V wiring to the inverter is large enough to handle the current draw. Be sure the battery is fully charged. You may need to turn the power switch on the STP-325 ON and OFF a few times to get the appliance “started”. Some motors and televisions may require this technique to get them operational.

Important: The STP-325 will not operate most appliances designed to produce heat such as hair dryers, heaters, toasters, and coffee makers. The STP-325 can draw up to 30 amps from your car’s battery when operating. If you are using it for extended periods of time, you will want to operate your car occasionally to maintain the charge in your car’s battery. The STP-325 will also draw a small current - less than .25 amps - when not operating, so it should be disconnected from your car’s battery if your vehicle will not be used for a few days.

Lights and Alarms

Power Indicator (Green)

This light is illuminated when the inverter is turned on and is operating normally. If this light goes out, either the 12 volt power supply is missing (possible blown fuse) or some fault condition has occurred. These fault conditions include: output overload, output short circuit, low input voltage and over-temperature of the unit. This can happen if a device has a large start-up surge, if an appliance (like a drill or saw) is stalled or if the inverter does not have a circulating supply of cool air.

Overload Fault Indicator (Red light)

The red light is illuminated when a current overload fault is detected. An overload fault occurs when the power draw exceeds the inverter’s maximum capability

An under-voltage fault (beep)

An under voltage fault can occur when the input voltage reaches about 10.2 volts. The STP-325 will sound a continuous alarm and shut off when the input voltage drops to 9.6v to protect your battery from being completely discharged.

An over-temperature fault

An over temperature fault occurs when the STP-325 internal circuitry gets too hot due to overload or improper air circulation. The STP-325 will turn off the green power light.

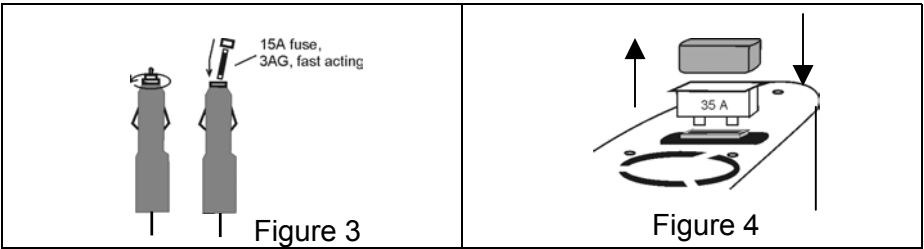
Fuse Replacement

Cigarette Plug fuse (see figure 3)

If you overload the STP-325, it is possible to blow the fuse in the cigarette plug. If this happens, unplug the cigarette plug from the power source, wait for the tip to cool and unscrew the metal tip on the plug. Remove the tip. Remove the fuse and install a new fuse rated at 15 amps. **Never use a fuse greater than 15 amps.** Replace the tip and screw firmly but do not over tighten. Always determine why the fuse blew and remedy the problem before using the STP-325 again.

Unit fuse (see figure 4)

If the fuse blows, disconnect both power leads from the battery. Remove the protective cap by pulling straight up. Next, remove the fuse by pulling straight up. Install a new 35 amp fuse and replace the protective cap. **Never use a fuse greater than 35 amps.** Always determine why the fuse blew and remedy the problem before using the STP-325 again.



Troubleshooting Guide

Problem	Possible cause	Solution
Unit does not operate.	Input voltage is below 10V	Attach to proper power supply.
	Fuse is blown.	Determine cause for fuse blowing and then replace the fuse feeding the inverter.
Unit operates for a short time and turns off.	Load is trying to draw too much current.	Be sure the load is less than the rated watts of inverter. Remove excessive load. Turn inverter off and then on
Unit operates for a while and gets hot and shuts off.	Inverter is in thermal shutdown mode.	Allow inverter to cool down. Turn the inverter off and on to reset.
Low battery alarm is on.	Input voltage is below 10.2 volts.	Make sure car engine is on. Check condition of wiring. Battery may be low and needs recharged.
Television and stereo interference.	RF interference from power inverter	Position the power inverter and wiring as far as possible from electronic equipment, antennas and cables. Re-orient as necessary.
115 VAC Output voltage reads incorrectly.	Modified sine wave output can cause an incorrect reading on a typical multimeter.	Use a true RMS meter like a Fluke 8060A or Triplett 4200 to measure correct voltage.

Product Specifications

Max. continuous power output	325 watts
Surge (peak) power output	650 watts
Input voltage range	11 to 15 volts dc
No load current draw	<0.25 amp
Full load current draw	30 amps
Low battery alarm/shut-down	10.2/9.6 V, +/- 0.5 V
Efficiency	90%
Output	115VAC, 60Hz, modified sine wave
Weight	2 lbs.
Size	7" x 4.3" x 2.0"